

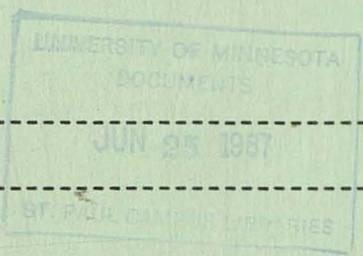
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PLANT PEST Newsletter

MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA



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Extension Plant Pathology

FUNGICIDE -- New or updated registrations: Ridomil/Bravo 81W.
Vegetable crops: See label for specific use patterns (Ciba-Geigy).

OATS - RED LEAF -- Affected plants have reddish leaves that also may appear slightly brownish-tan. Plants usually are dwarfed and may lack heads, especially on late-planted crop. This is a virus disease (barley yellow dwarf) transmitted by infected leafhoppers. The disease usually occurs on late-planted crops, and it causes major yield reduction. Many growers salvage some crop by cutting for silage.

This disease also occurs on barley and wheat. On barley, the leaves turn yellow from tip inward and the plants are dwarfed. Early infection of late-planted barley will result in yield reduction.

SPRING AND WINTER WHEAT - SCAB -- Now that the wheat crop is starting to mature, scab is being observed in most wheat fields in the southern half of the state. The symptoms may encompass the whole head or only parts of the head. The infected glumes are bleached; the unaffected glumes are normal green; the neck of the plant is green. A careful examination of the base of the glume or seed to rachis will usually reveal a pinkish-colored mass of mycelium. Infected seed will be shriveled to some degree. Badly infected seeds will usually be disregarded during the combine operation.

Infected seed should not be used for sowing next season's crop. If such seed must be used, clean the seed thoroughly to remove as much infected seed as possible and treat the seed before planting.

LEAF RUST -- Leaf rust is still building up on spring wheat! Numerous resistant type pustles are being found on the flag leaf of most varieties as far north as Thief River. Septoria and tan spot are doing very well. (By now you should know the symptoms.)

In making a decision for a disease control program, be sure to take into consideration the yield potential and date of planting.

Where rust is getting severe and the crop is still in the stage for treatment, you may wish to consider using Bayleton + Mancozeb or Benlate + Mancozeb for better rust control.

SUGAR BEETS -- Several favorable infection periods have occurred for Cercospora leaf spot disease. Beet fields should be scouted regularly for the first occurrence of the disease. It has been identified in the Minnesota-Dakotas area.

Dr. Art Lamey, extension plant pathologist, North Dakota State University, will provide infection period occurrence on AG-NET.

Root Rot -- Tap Root Tip Rot, our old root rot disease, is with us as expected. Most occurrences have been in southern Minnesota. The symptoms are wilted plants and progressively dying roots (tap) rotted off at the lower end, usually with a black color. Branch roots may be lacking. Wilt will occur in wet or moist soil, most commonly in fields with a long history of sugar beets. Wet conditions in June and early July favor disease development. Disease resistance was lost with the change in varieties.

CANOLA -- Stem rot (Sclerotinia) is expected to start showing up by mid-July, as reported from Manitoba Ag. Benlate is registered for use on Canola in Canada, but not in Minnesota nor in the United States. I believe the canola being grown in Minnesota has some resistance to stem rot.

Howard L. Bissonnette
Extension Plant Pathologist

SOYBEANS -- Bacterial leaf spot - Dark angular spots usually on the upper foliage are being seen. The angular spot often has a yellow halo and the leaves develop a ragged appearance. Bacterial leaf spot is common following heavy rains. Leaf damage may appear severe, but no yield loss is associated.

Phytophthora root rot (PRR) symptoms have increased. In many reports Race 1 resistant beans are dying to Phytophthora root rot.

Soybean growers should examine their fields closely to determine if a new race of PRR is present. If Race 1 resistant soybeans are planted and PRR is seen, the sample can be isolated and the Race can be determined for a fee of \$50.00.

Ward C. Stienstra
Extension Plant Pathologist

CUCURBITS -- Alternaria leaf spot on cucurbits caused by the fungus Alternaria cucumerina has been seen in early-planted muskmelon and cucumber. Although this pathogen occurs primarily on muskmelon, it will also affect cucumbers as well as other cucurbits. Symptoms on the leaves appear as small, circular water-soaked spots which expand up to 1/2 inch in diameter, forming dark concentric rings within the spots. Infected areas on the leaf can coalesce and affect large areas of the leaf. The fungus overwinters in old infected plant debris. Spores are spread by wind, splashing water, etc. Stressed or weak senescing plants are more susceptible to Alternaria leaf spot. See AG-F0-1884 for control recommendations.

ONIONS -- The wet weather of the past few weeks has provided a favorable environment for the development of several important leaf blight pathogens of onions. Botrytis leaf blight caused by Botrytis spp. produces symptoms on the leaves that first appear as numerous flecks. As the disease progresses, the leaves die from the tips and turn tan to brown in color. With favorable environmental conditions, plant tops may be killed and topple within a few weeks. Fungus spores are spread by wind and splashing water. Botrytis leaf blight frequently develops in leaf tissue that has been injured by thrips, mildew, sand blasting, etc. See AG-F0-1885 for control recommendations.

Another important blight pathogen of onion is purple blotch caused by the fungus, Alternaria porri. This pathogen may develop as white specks and may be associated with Botrytis blight. Initial symptoms on onion leaves infected with purple blotch appear as water-soaked spots which rapidly turn brown. As the lesions expand, they become zonate, and are covered with a brown dusty covering of spores. Frequent rains or heavy dews promote disease development. See AG-F0-1885 for control recommendations.

Francis Pflieger
Extension Plant Pathologist

EXTENSION ENTOMOLOGY

SCOUTING CORN ROOTWORMS -- Adult emergence began last week in southern Minnesota and should begin this week in central Minnesota. Monitoring fields is not crucial during the first two weeks of the flight, even though high populations may be observed. Both northern and western corn rootworms mate and undergo a preoviposition developmental period before they are ready to lay eggs. Late emerging western corn rootworms often migrate readily. Thus, scouting prospective 1987 corn fields during August, especially during the last three weeks, provides the best indication of corn rootworm egg laying.

Count beetles on 10 plants at each of 5 locations per field. In choosing representative locations, remember that corn rootworms are attractive to soaking and pollinating plants. Beetles are commonly found on leaves, in leaf axils, and at ear tips. Approach plants cautiously as beetles are quite flighty. Grab the ear tip to prevent beetle escape while counting beetles on the rest of the plant. Then, count beetles in the ear tip. If the count averages more than 1 beetle per plant, insecticide treatment is recommended for 1987. If counts average more than 5 beetles per plant, crop rotation is strongly recommended.

Scouting time can be cut up to 50 percent by using a sequential sampling program, especially if infestations are substantially lower or higher than 1 per plant. Under this program, scout fields in a U-shaped pattern with two plants per location. Keep a running total of adult counts. After 10 plants, consult the following table to make a decision. If a decision cannot be made after 54 plants, stop sampling and return in one week.

Sequential Sampling Table for Corn Rootworm Beetles

No. Plants Sampled	Discontinue Sampling; Low Number of Beetles. Resample in 7 Days.	Continue Sampling	Discontinue Sampling; High Number of Beetles. Rotate or Use RW Insecticide.
10	0-2	3-17	18 +
12	3-4	5-19	20 +
14	5-6	7-21	22 +
16	7-8	9-23	24 +
18	9-10	11-25	26 +
20	11-12	13-27	28 +
24	13-16	17-31	32 +
28	17-20	21-35	36 +
32	21-24	25-39	40 +
36	25-28	29-43	44 +
40	29-32	33-48	49 +
44	33-36	37-52	53 +
48	37-40	41-56	57 +
52	41-44	45-60	61 +
54	45-46	47-62	63 +

CORN ROOTWORM DAMAGE IN FIRST-YEAR CORN -- Last year, over 80 first-year corn fields suffered damage from northern corn rootworms. I am interested in monitoring this problem in 1986. Lodging of severely damaged fields should appear in the next 6 weeks. Please contact me at (612) 624-9272 if you observe any lodged first-year corn fields.

EUROPEAN CORN BORER -- Egg laying is largely completed in northern Minnesota and infestations should stabilize this week. Scattered infestations are reaching treatable levels. The incidence of treatable infestations appears lower than in the previous three years. The counts of live larvae per infested plant have also declined from averages of 4-6 per plant in 1984 and 1985, to 2-3 per plant in 1986. With fields beginning to tassel and third instars present in many fields, I would expect that tunneling will begin this week and control effectiveness should decline.

BLACKLIGHT TRAP CAPTURES-- The following table summarizes light-trap captures of important moth pests from July 9 to July 15.

District	Location	Average Nightly Captures			
		Armyworm		European corn borer	
			high		high
SC	Blue Earth	30.0	113	0.1	1
* NW	Crookston	-	-	-	-
* WC	Fergus Falls	-	-	-	-
C	Glencoe	8.0	9	14.0	21
NW	Hallack	trace	2	0.0	0
SW	Heron Lake	1.0	2	5.0	9
SW	Lamberton	14.0	29	0.0	0
SC	LeSueur	35.0	79	2.0	7
* SE	Lewiston	-	-	-	-
SC	Montgomery	0.0	0	31.0	68
WC	Morris	14.0	35	1.0	3
C	Olivia	6.0	9	2.0	5
SE	Olmsted	125.0	509	16.0	39
NW	Ottertail	1.0	2	1.0	2
NW	Polk	2.0	4	3.0	7
SC	Sleepy Eye	51.0	113	3.0	5
SC	Waseca	25.0	39	26.0	68
SW	Worthington	13.0	19	33.0	42

* No report this week.

Data are obtained through the cooperative efforts of the Minnesota Department of Agriculture, the University of Minnesota and its Agricultural Experiment Station, and commercial and private cooperators.

Kenneth R. Ostlie
Extension Entomologist

POSTING OF FIELDS FOLLOWING PESTICIDE APPLICATION -- We have had questions about posting of fields following use of some pesticides, notably the more toxic insecticides. From a legal standpoint, at the present time when a label states a field should be posted, it must be posted. Otherwise it need not be. I sorted through 1986 labels and found that not all parathion and methyl parathion labels, for example, contain a posting requirement. There are no state regulations, other than labeling, that would presently apply to this. Because some parathion and ethyl parathion labels have a posting requirement, it would seem both reasonable and judicious to post all fields treated with these compounds regardless of their specific label content.

There is even more variation as to how re-entry times are listed on the labels. In the majority of the labels, it indicates the hazard and the re-entry times for the given chemical must be communicated in writing or orally to workers and others who may enter treated fields. Generally these re-entry times are 48 hours.

One can ask whether re-entry times should be included on signs indicating treatment. Nothing on labels specifically indicates this needs to be done. However, again it just seems a responsible thing to do.

Many labels now limit application to the specific fields being treated. Furthermore, they state that drift on unprotected persons or sites is prohibited. Such wording is fairly specific and would seem to me to carry legal implications when objective evidence of drift is obtained.

It's fairly clear that the public concern about pesticide hazards is still with us and I'm sure we will see additional regulation of chemical handling and application. Yet, some of our more toxic insecticides are among the cheapest and most effective materials with which we work. We should take the extra step in keeping everyone informed as to the products used and the safety precautions essential for their continued use.

BARLEY THRIPS -- High numbers of barley thrips have been reported from several northwest Minnesota locations. We have counts in excess of 10 thrips per plant in early-planted fields. Damage to the flag leaf sheath appears to accelerate as the plant grows from late boot to late milk stage. We observed beginning injury to fields planted the third week of May. Damage appears to begin on exposed leaf surfaces, with sheath entry by the adult and nymph occurring later in plant development. We have observed thrip numbers in excess of 4 per plant on wheat (variety Marshall) as well.

The only data relating yield to thrip numbers are older data on barley varieties we no longer grow. The loss was not great, but the data probably should be considered soft.

The general consensus is that once the grain is well headed, treatment will not pay. However, if you have a high contract price for plump barley, yield potential is high, and the grain is early headed at the latest, you may wish to consider a treatment.

Severe damage results in whitened flag leaf sheath and probably dissection of the flag leaf. We do not have good data in regard to yield effects in such plants. With barley prices as they are, insecticide application in most cases will probably not pay.

The action levels are 2 adult thrips and 28-30 young per plant. Only methyl and ethyl parathion are labeled for this insect at 4-6 oz per acre.

David Noetzel
Extension Entomologist

ALFALFA INSECTS -- POTATO LEAFHOPPERS (PLH) are now threatening to damage alfalfa on a fairly large scale unless action is taken to control above-threshold infestations. But numbers of PLH -- and the associated risk of damage from them -- vary widely from region to region, and even within regions.

In the Sherburne, Wright, Benton, and eastern Stearns counties area, PLH in many fields are less abundant than 2 weeks ago, apparently due to high mortality of nymphs and eggs, and exodus of adults, resulting from the second cut. The recent rain has allowed such rapid regrowth of the alfalfa that the PLH threshold (which depends on regrowth height) has risen faster than the number of adults re-invading the field, so numbers in most fields are remaining safely below threshold. Only one or two fields on sandy or sandy-loam soils had higher PLH numbers, approaching threshold. Even on 600-700 acres of alfalfa seeded this May (including some clear seedings), which are both more vulnerable to damage and sometimes more likely to have high numbers, PLH numbers remain low.

By contrast, in the Dakota, Scott, Rice, western Goodhue, eastern LeSueur, Steele and Dodge counties area, damaging (over-threshold) numbers of PLH are widespread. New seedings seem to be the worst infested; on 90% of the new seedings reported, estimates were above-threshold infestations of PLH. Numbers as high as 5-6 PLH/sweep, including many nymphs, were reported from new seedings ranging in height from 10 to 24 inches, with most nearer 10 inches of growth since its first cut. The threshold for 8- to 11-inch alfalfa is 1/sweep, and for taller alfalfa, 2/sweep.

Two reasons why new seedings may have favored buildup of leafhoppers are their longer interval until first cut and between cuts than established alfalfa, and the fact that they are not likely to be cut so short. The latter would enable eggs in the alfalfa stems to remain in spite of cutting. The longer interval would enable more nymphs to complete development to the adult stage before harvest, and so be able to survive by moving out of the field (at least temporarily) rather than dying. With the current variable weather, PLH nymphs exposed on stubble may either die of dessication in the direct sun or be drowned in a heavy rain, or survive, if it is overcast and humid, until they can find shelter and succulent tissue on which to feed.

Established alfalfa in the same area mostly has 3-7 inches of regrowth after the second harvest, and above-threshold infestations of PLH are

reported from 20-25% of such fields. On fields that have not yet been cut the second time, there is the risk that a longer interval between harvests will favor buildup of PLH as in the new seedings.

Further southeast, in Houston, Fillmore, Olmsted, Winona, and Wabasha counties, although leafhoppers are present in all fields, infestation levels vary widely between fields, with about 20% of fields reported to exceed threshold densities. PLH nymphs are now more common in the samples from these fields, too. Most fields in the area range from fresh stubble to 7- to 8-inch regrowth, but are growing fast due to the recent rain.

So far no PLH damage symptoms have been reported from any part of the state, perhaps because the rain has speeded regrowth of the alfalfa. However, with the high numbers of leafhoppers reported from some areas, damage is likely to become visible sooner or later if control action is not taken. Remember that once damage symptoms appear, some economic loss has already occurred. See last week's newsletter for a description of the damage, and AG-BU-0500 for recommended insecticides. Methoxychlor and malathion are safer for human handling than many of the other recommended products.

High numbers of PLANT BUG NYMPHS have been reported from one or two fields, but they are not widespread. Likewise, there are sporadic reports of grasshopper nymphs, but as yet below threshold levels.

VEGETABLE INSECTS -- The latest Wisconsin Aster Yellows Report tells of very high numbers of ASTER LEAFHOPPER (ALH) moving from drying off small grains into susceptible vegetable crops. The level of infection with Aster Yellows pathogen carried by these leafhoppers varied widely, from 1% to 6%. They are advising their growers to use an infection level of 5% in calculating the Aster Yellows Index.

We do not have any local data on numbers of ALH, nor on levels of infestation; but it is probably similar to those in Wisconsin. They advise that if high numbers of ALH have moved into susceptible crops, these crops should be sprayed often enough that an effective dose of insecticide is kept on the crop at all times until infestations cease to be re-initiated. This will kill the ALH before they can transmit the yellows. It will require spraying at 4-5 day intervals if Sevin is used, 5-7 days for Methoxychlor, and 10-day intervals for Pydrin.

Penny Ives
Extension Entomologist

DIAL U WEEKLY SUMMARY REPORT -- The following table highlights clinic contacts of special interest for the week of July 8-14, 1986.

HOST

DIAGNOSIS

European Larch Mycosphaerella Needle Cast

This is the first reported case in Minnesota. See page 137 for more details.

Crabapple, Apple Apple Scab

This continues to be the most frequently reported disease problem. See AG-FS-1173 and AG-FO-0675.

Honeysuckle Honeysuckle Aphid

For people who are noticing the witches' brooming for the first time, spraying can help minimize further attacks, although there will not be any impact for any damage already done. However, if you have been spraying since May to maintain the honeysuckle's appearance, it will be time for the 4th application. Orthene is an effective insecticide for aphids.

Strawberry Root Weevil (SRW)

We continue to receive calls on SRW. See PPN of July 11, 1986, for further details.

Picnic Beetles

Picnic beetles are beginning to be found in gardens. They are attracted to ripening and overripe fruits and vegetables. Once they are attracted to your garden, there is no effective control. To avoid attracting these beetles, pick fruits and vegetables as they ripen and avoid leaving them on the ground.

Apple Plant I.D.

We are starting to get apple IDs, but it's not possible to identify from leaves or immature fruit. We can ID mature fruit. Send two or three typical looking, ripe apples with a \$2.00 check for each variety. Mail to: Dial U, 145 Alderman Hall, University of Minnesota, St. Paul, MN 55108.

Annual Grasses Weed Control

It's far too late to control annual grasses in the lawn and garden (crabgrass, foxtail, etc.). Hoe them out of gardens, if possible, and catch lawn clippings to reduce seed drop for next year. Then use a pre-emergent herbicide in early May to prevent seed germination.

Vine Crops

Failure to Set Fruit

When tiny cukes or squash begin to expand, then yellow and drop off, it is from lack of pollination. Shade, wet weather, and excessive use of insecticides can all contribute. Often the problem rectifies itself as the season goes on.

Jill Pokorny
Plant Pathology

Jeff Hahn
Entomology

Deb Brown
Horticulture

FIRST REPORT IN MINNESOTA -- Mycosphaerella Needle Cast on European Larch -- The first reported case of needle cast of European larch caused by the fungus, Mycosphaerella laricina, has been verified in Minnesota. It was recently reported on European larch (Larix decidua) in plantations in Wisconsin, Iowa, and Michigan. Previously, it was known only to occur on larch in Europe. Introduction of this disease into the Midwest is believed to have been on infected nursery stock. Researchers at the North Central Experiment Station are currently studying the biology of this disease, its associated injury, and fungicide efficacy.

Infected needles first turn yellow, then brown, and drop prematurely. Symptoms may be evident any time from June to September. Infected branches may refoliate the same season, but these also may become infected. Potential injury to the host is unknown; however, it may be speculated that repeated defoliations could result in branch dieback.

Samples to be tested for the presence of this disease can be sent to: Plant Disease Clinic, 495 Borlaug Hall, University of Minnesota, St. Paul, MN 55108. There is a \$15.00 fee for diagnostic services. Please make checks payable to the University of Minnesota.

Jill D. Pokorny
Plant Pathology

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